



## **Extreme heavy rainfall days in China: 1951-2005**

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In China, heavy rainfall events have great influences on the society. From the observed daily rainfall amount of 743 stations, 149 of them have been selected with high quality and unbroken records during 1951-2005. Based on these records, the spatial and temporal distribution of the heavy rainfall days (with 24-hour rainfall amount greater than 50mm) are analyzed in this paper to reveal some basic features. The main results can be summarized as follows:

- 1) Heavy rainfall days in China have a remarkable characteristic of regional distribution. The frequencies increase from north to south, with two centers locating in South China and the Yangtze River valley, respectively. The heavy rainfall events occur mainly in May-June-July-August (MJJJA), but differ a lot in different months. In May, owing to the onset of the South China Sea summer monsoon, the events can be frequently found over South China. In June and July, the maximal center of the days moves northward to the Yangtze River valley because of the beginning of the Chinese Meiyu. But in August, the maximal center drawbacks to South China again.
- 2) Since the 1990s, the heavy rainfall days have increased comparing to the counterparts of 1951-1989, which is consistent with the conclusion of IPCC (2001) that "More intense precipitation events are very likely to happen over most areas".
- 3) Correlation results show that the SSTa over Nino3 region has a good relationship with the heavy rainfall days in the east and south part of China, especially in the Yangtze River valley and the South China, with a significance level of 99%. That means the ENSO events can be a good predictor for the heavy rainfall events.